## VERSION WITH MARKINGS TO SHOW CHANGES MADE

**In the Claims**

The claims have been amended as follows:

11. (Three Times Amended) A magnetic recording medium, comprising:

a substrate;

an underlayer supported by the substrate;

a first magnetic layer on the underlayer, said first magnetic layer having **a** first alloy composition that includes Pt and a first coercivity; and

a second magnetic layer on and in contact with the first magnetic layer, the second magnetic layer having a second alloy composition that includes Pt which differs from the first alloy composition and a second coercivity which differs from the first coercivity, **the second alloy composition not containing more boron by atomic percentage than the first alloy composition,** whereby a coercivity of the two magnetic layers is different than the first and second coercivities and is determined by a relative thickness of the first magnetic layer to the thickness of the two magnetic layers.

20. (Three Times Amended) A method for establishing a coercivity of magnetic recording material on a substrate comprising the steps of providing a substrate and **first and second** ~~at least two~~ cobalt based alloy magnetic layers sputtered in sequence on the substrate and in contact with one another, wherein the first magnetic layer has a first quaternary alloy composition and a first coercivity, the second magnetic layer has a second quaternary alloy composition and a second coercivity, **the first quaternary alloy composition contains as much or more boron by atomic percentage than the second quaternary alloy composition,** with the relative thicknesses of the two magnetic layers determining the coercivity, and the coercivity being different than the first and second coercivities.

21. (Twice Amended) A magnetic recording medium, comprising:

a substrate;

a first magnetic layer over the substrate, wherein the first magnetic layer has a first alloy composition and a first coercivity; and

a second magnetic layer on and in contact with the first magnetic layer, wherein the second magnetic layer has a second alloy composition and a second coercivity, the first and second alloy compositions are different, the first and second coercivities are different, a coercivity of the medium is different than the first and second coercivities, and varying a thickness fraction of the thickness of the first magnetic layer to the thickness of the first and second magnetic layers **changes** ~~has a significant effect on~~ the coercivity of the medium **a first percentage, changes** ~~with little or no effect on~~ the remanence of the medium **a second percentage, and the first percentage is at least twice the second percentage**.

29. (Amended) The magnetic recording medium as defined by claim 21 wherein the **second alloy composition excludes boron**~~first and second magnetic layers are deposited under the same deposition conditions~~.

31. (Twice Amended) A magnetic recording medium, comprising:

a substrate;

a first magnetic layer over the substrate, wherein the first magnetic layer has a first alloy composition and a first coercivity and is sputter deposited over the substrate under a first deposition condition that includes a temperature and bias of the substrate; and

a second magnetic layer on and in contact with the first magnetic layer, wherein the second magnetic layer has a second alloy composition and a second coercivity and is sputter deposited on the first magnetic layer under a second deposition condition that includes a temperature and bias of the substrate, the first and second alloy compositions are different compositions that contain Co and Pt, **the second alloy composition does not contain more boron by atomic percentage than the first alloy composition,** the first and second coercivities are different, the first and second deposition conditions are the same, and a coercivity of the medium is different than the first and second coercivities.

39. (Twice Amended) The magnetic recording medium as defined by claim 31 wherein varying a thickness fraction of the thickness of the first magnetic layer to the thickness of the first and second magnetic layers **changes** ~~has a significant effect on~~ the coercivity of the medium **a first percentage, changes** ~~with little or no effect on~~ the remanence of the medium **a second percentage, and the first percentage is at least twice the second percentage**.

41. (Twice Amended) A magnetic recording medium, comprising:

a substrate;

a first magnetic layer over the substrate, wherein the first magnetic layer has a first alloy composition and a first coercivity; and

a second magnetic layer on and in contact with the first magnetic layer, wherein the second magnetic layer has a second alloy composition and a second coercivity, the first and second alloy compositions are different quaternary alloy compositions, **the second alloy composition does not contain more boron by atomic percentage than the first alloy composition,** the first and second coercivities are different, and a coercivity of the medium is different than the first and second coercivities.

49. (Amended) The magnetic recording medium as defined by claim 41 wherein the **second alloy composition excludes boron**~~first and second magnetic layers are deposited under the same deposition conditions~~.

Claims 51-60 have been added.

## REMARKS

Claims 1-60 are pending. In this Response, claims 11, 20, 21, 29, 31, 39, 41 and 49 have been amended, and claims 51-60 have been added.

### I. SECTION 112, SECOND PARAGRAPH REJECTIONS

Claims 21 and 39 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 21 and 39 are rejected since the relative phrases "significant effect" and "little . . . effect" are not defined. Accordingly, claims 21 and 39 have been amended to delete these phrases and recite "varying a thickness fraction of the thickness of the first magnetic layer to the thickness of the first and second magnetic layers changes the coercivity of the medium a first percentage, changes the remanence of the medium a second percentage, and the first percentage is at least twice the second percentage." The original Specification provides support in Figs. 4-7.

Therefore, Applicant requests that these rejections be withdrawn.

### II. SECTION 102 REJECTIONS – ZHANG

Claims 11-13 and 18 are rejected under 35 U.S.C. § 102(b) as being anticipated by *Zhang* (U.S. Patent No. 5,772,857).

*Zhang* discloses a double layer media with a CoCrTa layer and a CoCrTaPt layer.

Claim 11 recites that the first magnetic layer has a first alloy composition "that includes Pt" and the second magnetic layer has a second alloy composition "that includes Pt." *Zhang* fails to teach or suggest that the CoCrTa layer includes Pt.

In sustaining these rejections, the Examiner refers to *Zhang* at col. 7, lines 37-48. This passage refers to Example IV in which the CoCrTa and CoCrTaPt layers are reversed. The compositions, however, remain the same, and the top (second) CoCrTa layer lacks Pt.

Under 35 U.S.C. §102, anticipation requires that each and every element of the claimed invention be disclosed in the prior art. *Akzo N.V. v. United States International Trade Commission*, 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987). That is, the reference must teach every aspect of the claimed invention. M.P.E.P. § 706.02.

Therefore, Applicant requests that these rejections be withdrawn.

## III. SECTION 102/103 REJECTIONS – BIAN ET AL.

Claims 11-13, 18-22, 27, 29-32, 37, 39-42, 47 and 49-50 are rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over *Bian et al.* (U.S. Patent No. 6,143,388).

*Bian et al.* discloses a magnetic disk with onset layer 14 and magnetic layer 15. Onset layer 14 is a magnetic or nonmagnetic layer such as CoCrTa, CoCrB, CoPtCrTa or CoPtCrB, and magnetic layer 15 is CoPtCrB. Magnetic layer 15 is a quaternary boron alloy with a tendency to orient with the C-axis vertical to the plane of the substrate. Onset layer 14 promotes magnetic layer 15 having an hcp growth pattern with the C-axis strongly in plane.

Claim 11 has been amended to recite "the second alloy composition not containing more boron by atomic percentage than the first alloy composition." Claims 20, 31 and 41 have been amended to recite similar limitations. *Bian et al.* fails to teach or suggest that magnetic layer 15 does not contain more boron by atomic percentage than onset layer 14. In fact, *Bian et al.* teaches just the opposite. Onset layer 14 promotes magnetic layer 15 having the C-axis strongly in plane. Therefore, if onset layer 14 contained as much or more boron than magnetic layer 15, then onset layer 14 would also tend to orient with the C-axis vertical to the plane of the substrate, thereby improperly orienting magnetic layer 15.

Claim 21 has been amended to recite "varying a thickness fraction of the thickness of the first magnetic layer to the thickness of the first and second magnetic layers changes the coercivity of the medium a first percentage, changes the remanence of the medium a second percentage, and the first percentage is at least twice the second percentage." The original Specification provides support in Figs. 4-7. *Bian et al.* fails to teach or suggest anything remotely similar to this.

Under 35 U.S.C. §102, anticipation requires that each and every element of the claimed invention be disclosed in the prior art. *Akzo N.V. v. United States International Trade Commission*, 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987). That is, the reference must teach every aspect of the claimed invention. M.P.E.P. § 706.02.

To establish a prima facie case of obviousness (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference (or references when combined) must teach or suggest all the claim limitations (MPEP § 2143). See also *C.R. Bard, Inc. v. M3 Systems, Inc.*, 157 F.3d 1340, 1351 (Fed. Cir. 1998). It is insufficient that the prior art shows similar components unless it also contains some teaching, suggestion or incentive for arriving at the claimed structure. See *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 934 (Fed. Cir. 1990). Moreover, if the proposed modification would render the prior art unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification (M.P.E.P. § 2143.01).

Therefore, Applicant requests that these rejections be withdrawn.

## IV. SECTION 103 REJECTIONS – BIAN ET AL.

Claims 16, 23, 28, 33, 38, 43 and 48 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Bian et al.*

Applicant submits that these rejections are moot for the reasons mentioned above.

Furthermore, in sustaining these rejections, the Examiner asserts that the first alloy compositions in claims 16, 28, 38 and 48 fall within the ranges of onset layer 14. Applicant disagrees. As the Examiner correctly notes, *Bian et al.* discloses that onset layer 14 can be CoPtCrTa containing 1-5 atomic percent Ta, and B can be substituted for Ta. However, even if the substitution was made, yielding onset layer 14 as CoPtCrB containing 1-5 atomic percent B, the first alloy composition Co-20Cr-10Pt-8B would not fall within this range since it contains 8 atomic percent B.

## V. NEW CLAIMS

Claims 51-55 have been added to further clarify various features of the invention. No new matter has been added.

Claim 51 represents claim 14 rewritten in independent form including all limitations of the base claim and any intervening claims, which the Examiner indicated was allowable.

Claim 52 represents claim 15 rewritten in independent form including all limitations of the base claim and any intervening claims, which the Examiner indicated was allowable.

Claim 53 represents claim 16 rewritten in independent form including all limitations of the base claim and any intervening claims. Claim 53 recites "the second magnetic layer having a second alloy composition of Co-20Cr-8Pt-4Ta." *Bian et al.* fails to teach or suggest this approach. In particular, magnetic layer 15 includes B and excludes Ta.

Claim 54 represents claim 17 rewritten in independent form including all limitations of the base claim and any intervening claims, which the Examiner indicated was allowable.

Claim 55 recites "the second magnetic layer having a second quaternary alloy composition that includes Co, Cr, Pt and Ta." *Bian et al.* fails to teach or suggest this approach. In particular, magnetic layer 15 includes B and excludes Ta.

Claim 56 recites "varying a thickness fraction of the thickness of the first magnetic layer to the thickness of the first and second magnetic layers changes the coercivity of the medium by at least 10 percent and changes the remanence of the medium by at most 5 percent." The original Specification provides support in Figs. 4-7. *Bian et al.* fails to teach or suggest anything remotely similar to this.

## VI. FEES

The fee is calculated below:

| For | Claims Remaining After Amendment | Highest Number Previously Paid For | | Extra Claims | Rate | | Additional Fee |
|---|---|---|---|---|---|---|---|
| Total Claims | 60 | - 50 | = | 10 | x $18 | = | $180 |
| Independent Claims | 12 | - 6 | = | 6 | x $84 | = | $504 |
| Multiple Dep. Claim | 0 | 0 | | | $280 | = | 0 |
| Total Fee | | | | | | = | $684 |

Please charge the $684 fee and charge any underpayment and credit any overpayment to Deposit Account No. 13-0016/MM0011.

## VII. CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance. Should any issues remain, the Examiner is encouraged to telephone the undersigned attorney.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on May 5, 2003.

D Sigmond

David M. Sigmond
Attorney for Applicant

5/5/03
Date of Signature

Respectfully submitted,

D Sigmond

David M. Sigmond
Attorney for Applicant
Reg. No. 34,013
(303) 702-4132
(303) 678-3111 (fax)